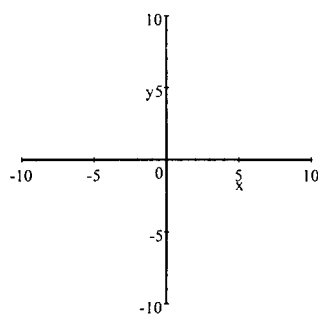


MATH 093 FINAL REVIEW

1. Find an equation of the line passing through the points $(-1,2)$ and $(-4,4)$.

2. Factor: $x^2 + 4x - 12$

3. Find the x - and y - intercepts then graph the linear equation: $4x - 3y = -12$



4. Subtract $-3x^2 + 11x + 5$ from $-x^3 + 12$.

5. Multiply: $(5x + 3)(2x - 5)$

6. Find the slope of the line passing through the points $(2,-2)$ and $(-5,-1)$.

7. Simplify: $(3x^2y + 4xy^2) - (6y^2x - 7yx^2)$

Final Review

8. Mary Jane bought two pairs of slacks and four blouses for \$298. Later she bought three pairs of the same kind of slacks and five of the same kind of blouses for \$401. What is the price per pair of slacks and the price per blouse?
9. Solve for y : $3x + 2y = 12$
10. Bob traveled 780 miles by train. On his return trip, he went by plane which traveled at a rate four times that of the train. If the trip took a total of 15 hours, what was the rate of the plane?
11. Simplify: $(3x - 4)^2$
12. When $p = -4$ and $q = -3$, evaluate $6p - 3q^2 + 5^0$.
13. Add and simplify: $\frac{5x}{2x + 6} + \frac{1}{2x - 6}$

14. Solve: $\frac{3x+1}{2} + 3 = 4 - (7 - 2x)$

15. Find the solution of the system: $\begin{cases} 3x + y = -7 \\ x - 4y = -11 \end{cases}$

16. Find the cube root of $-8z^3$

17. Two airplanes are 2775 miles apart and traveling toward each other. One airplane is going 75 mph faster than the other. If they will meet in 3 hours, what is the rate of the slower airplane?

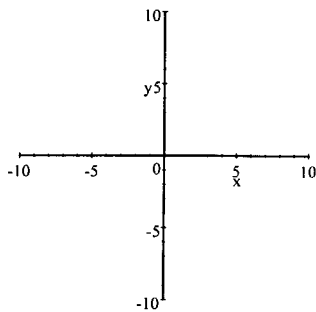
18. Rationalize the denominator of the expression: $\sqrt{\frac{45}{2x}}$

19. Solve the linear inequality: $-3 - x < -15$

20. The hypotenuse of a right triangle is 17 m. The shorter leg is 7 m less than the longer leg. Find the length of the longer leg.

Final Review

21. Graph the linear equation: $y = 3x$



22. Evaluate: $(-7)^0$

23. Simplify the arithmetic expression: $1^5 \cdot 5^1$

24. Multiply and simplify: $\frac{x^2 - 2x}{x + 3} \cdot \frac{x^2 - 9}{x^2 - 4x + 4}$

25. Solve: $3x^2 + x = 10$

26. Factor: $4x^2 - 6x - 18$

27. Find the slope of the line $y = 2$.

28. Factor: $2x^2 - 15x + 7$

29. Solve: $\frac{x+5}{x-2} - \frac{1}{3} = 3$

30. The sum of ² consecutive numbers is 331. Find the larger number.

31. If y varies directly as x and $y = 17$ when $x = 51$, find the constant of variation and write the variation equation.

32. Factor: $25x^2 - 36$

33. Simplify and write using positive exponents: $(2c^3d^{-2})^{-4}$

34. Translate: the quotient of 4 and 3 less than a number n

Final Review

35. Simplify: $\frac{16x^2 - 100}{6x^2 - 11x - 10}$

36. Factor completely: $27x^3 + 18x^2 + 3x$

37. Solve: $\sqrt{3k^2 - 2} = 19$

38. Sixteen less than 5 times a number is 69. Find the number.

39. Divide and simplify: $\frac{-56a^4 + 4a}{-4a}$

40. Evaluate: $(\sqrt{97})^2$

41. Solve: $x(x - 7) = -10$

42. Translate: Z varies inversely as a^2

43. Simplify the radical expression: $\sqrt{54} - \sqrt{24}$

44. Find an equation of a line that has slope $\frac{2}{3}$ and *y-intercept* -5 .

45. Solve: $x^2 - 20 = 0$

46. Find the slope of the line that contains the points $(6,5)$ and $(6,-3)$.

47. Jan drives 240 miles to visit her parents. Because of bad weather her rate returning the same distance is 12 mph less than her rate going. If her total driving time is 8 hours, what is Jan's rate returning?

48. Simplify: $6x - (3x + 1)$

Final Review

49. Divide and simplify: $\frac{x^2 - 1}{5x + 10} \div \frac{3x^2 - 6x + 3}{10x + 20}$

50. A highway curve banked at 8° will accommodate traffic traveling s miles per hour if the radius of the curve is r feet, according to the formula $s = 1.5\sqrt{r}$. If the highway engineers expect 45 mph traffic, what radius should they specify?

51. The product of two consecutive positive integers is 240. Find the smaller integer.

52. Solve for x : $D(4x - E) = F$

53. Find an equation of the line with slope 5 and passing through $(2, -1)$.

54. Simplify and write using positive exponents: $\left(\frac{ab}{2b^4}\right)^{-3}$

55. Find a second point on the line with slope 2 and passing through $(-5, 3)$.

56. Write a proportion for the following and then solve:

If it takes 2 hrs to plant 45 tomato plants, how long will it take to plant 180 tomato plants?

57. Subtract and simplify: $\frac{x}{x^2 - 4x + 3} - \frac{3}{x^2 + 2x - 15}$

58. Convert to decimal notation: 1.56×10^{-8}

59. Translate: The difference of two numbers is four times the smaller number

60. The length of a rectangle is 3 ft more than twice the width and the area is 135 square ft. Find the length of the rectangle.

61. Factor the common term: $5(x + 4)^2 - 2(x + 4)$

Final Review

62. Solve: $\frac{2x}{x-1} + \frac{1}{x-3} = \frac{2}{x^2 - 4x + 3}$

63. When $m = -3$ and $n = -5$, evaluate $\frac{-4n}{m-n}$.

64. Solve: $3x - 5 = -9$

65. Evaluate $-x^2 - 3x + 10$ when $x = 6$.

66. Rewrite the radical so that the radicand has no perfect square factor: $\sqrt{300x^3y^3}$

67. Solve: $3(x-2)^2 = 75$

68. Solve: $x^2 - 4x = 2x - 5$

69. Jack swims 4 miles upstream in the same time that it takes him to swim 6 miles downstream. If the speed of the stream is 1 mph, what is Jack's speed in still water?

70. Multiply and simplify: $-\frac{5x}{3y} \cdot \frac{6y^2}{25x}$

71. Determine the excluded values for the rational expression: $\frac{3x + 7}{5x + 9}$

72. Solve: $4 + \sqrt{x - 4} = x$

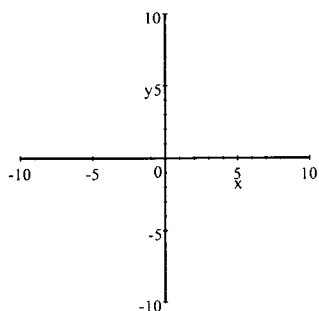
Final Review

73. Henry invested \$1800, part at 4% and part at 6% per year. He earned a total of \$89.00 in interest the first year. How much did he have invested at the lower rate?
74. Find the square roots of $-\frac{36}{25}$.
75. Jan swims 4 miles upstream and then returns in a total time of 3 hours. If the speed of the stream is 1 mph, what is Jan's speed in still water?
76. Multiply; give the answer in scientific notation: $(7.04 \cdot 10^6) \cdot (8.25 \cdot 10^{-14})$
77. The volume V of a gas varies inversely as the pressure P . If the volume is 20 cubic inches when the pressure is 120 pounds per square inch (psi), what is the volume when the pressure is 80 psi?
78. Find the square roots of $144x^2$.

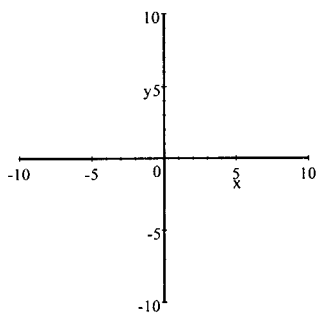
79. Solve: $x^2 + 4x - 9 = 0$

80. Subtract and simplify: $\frac{3x + 4}{x^2 - 25} - \frac{x + 14}{x^2 - 25}$

81. Graph: $x = -4$



82. Graph: $y = -\frac{3}{4}x - 5$



83. Convert to scientific notation: .0064056

84. Write as a ratio and simplify: 14 inches to 3 feet

Final Review

85. One number is 3 more than another and their product is 238. Find the larger number.

86. Write as a ratio and simplify: 3 weeks to 24 days

87. Simplify the radical expression: $2\sqrt{3} + 5\sqrt{2} - 7\sqrt{3}$

88. Multiply: $(x + 4)(x^2 - 3x + 7)$

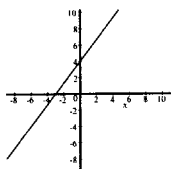
89. Find the slope of the line $x = -3$

90. Simplify: -3^2

91. Simplify $(-5)^2$

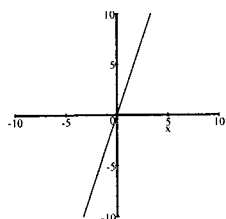
MATH 093 - FINAL REVIEW ANSWERS

1. $y = -\frac{2}{3}x + \frac{4}{3}$
2. $(x+6)(x-2)$
3. x -int: $(-3, 0)$, y -int: $(0, 4)$



4. $-x^3 + 3x^2 - 11x + 7$
5. $10x^2 - 19x - 15$
6. $m = -\frac{1}{7}$
7. $10x^2y - 2xy^2$
8. \$57 per pair of slacks,
\$46 per blouse
9. $y = -\frac{3}{2}x + 6$
10. 260 mph
11. $9x^2 - 24x + 16$
12. -50
13. $\frac{5x^2 - 14x + 3}{2(x-3)(x+3)}$
14. 13
15. $(-3, 2)$
16. $-2z$
17. 425 mph
18. $\frac{3\sqrt{10x}}{2x}$
19. $x > 12$
20. 15 m

21.

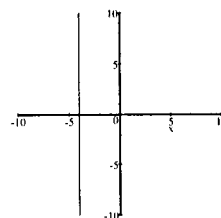


22. 1
23. 5
24. $\frac{x(x-3)}{x-2}$
25. $5/3, -2$

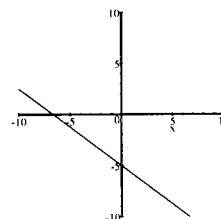
26. $2(2x+3)(x-3)$
27. $m = 0$
28. $(2x-1)(x-7)$
29. 5
30. 166
31. $k = \frac{1}{3}; y = \frac{1}{3}x$
32. $(5x-6)(5x+6)$
33. $\frac{d^8}{16e^{12}}$
34. $\frac{4}{n-3}$
35. $\frac{4(2x+5)}{3x+2}$
36. $3x(3x+1)^2$
37. 11, -11
38. 17
39. $14a^3 - 1$
40. 97
41. 2, 5
42. $z = \frac{k}{a^2}$
43. $\sqrt{6}$
44. $y = \frac{2}{3}x - 5$
45. $-2\sqrt{5}, 2\sqrt{5}$
46. undefined
47. 54.6 mph
48. $3x - 1$
49. $\frac{2(x+1)}{3(x-1)}$
50. 900 ft
51. 15
52. $x = \frac{F + DE}{4D}$
53. $y = 5x - 11$
54. $\frac{8b^9}{a^3}$
55. $(-4, 5)$
56. 8 hrs
57. $\frac{x^2 + 2x + 3}{(x-3)(x-1)(x+5)}$
58. 0.0000000156
59. $x - y = 4y$
60. 18 ft
61. $(x+4)(5x+18)$

62. $-1/2$
63. 10
64. $-4/3$
65. -44
66. $10xy\sqrt{3xy}$
67. -3, 7
68. 1, 5
69. 5 hrs
70. $-\frac{2y}{5}$
71. The excluded value is $-9/5$
72. 4, 5
73. \$950
74. No real square roots
75. 3 mph
76. 5.808×10^{-7}
77. 30 cubic inches
78. $12x, -12x$
79. $-2 \pm \sqrt{13}$
80. $\frac{2}{x+5}$

81.



82.



83. $6.4056 \cdot 10^{-3}$
84. $\frac{7}{8}$
85. 17
86. $\frac{7}{8}$
87. $5\sqrt{2} - 5\sqrt{3}$
88. $x^3 + x^2 - 5x + 28$
89. undefined slope
90. -9
91. 25